

### **REMARKS**

Claims 31 and 34-54 are currently pending in the captioned application. The claims have been amended to more particularly point out and distinctly claim the subject matter of the invention. Applicants respectfully submit that the amended claims are supported by the original disclosure of this application. As such, no new matter has been added by these amendments. Reconsideration of this application is respectfully requested.

#### **1. Information Disclosure Statement**

According to the Examiner, the information disclosure statement filed March 3, 2005 failed to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. In response, Applicants supply herewith a copy of each of the documents cited in the March 3, 2005 information disclosure statement. Applicants request that said cited documents be made of record in the present file wrapper.

#### **2. Invention as Claimed**

Claim 9 refers to "subtractor." According to the Examiner, the functional limitation of "subtractor" regarding the ligand is not provided patentable weight. As detailed below, Applicants have amended the claims to more particularly point out and distinctly claim the subject matter of the invention.

#### **3. Claim Objections**

Claims 34-36, 38-40, 43, 47, 50, and 52-54 objected to by the Examiner because the claims are dependent on claims drawn to a non-elected invention, i.e. claims 32 and/or 33. Applicants have amended the claims to correct the dependency of the claims.

**4. Claim Rejections Under 35 USC § 112, Second Paragraph**

Claims 31 and 34-54 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Examiner, one of skill in the art would not be able to determine the scope of the presently claimed invention. Specifically, as stated by the examiner, independent claim 31 reads “a first subtractor ligand” and “a second target ligand,” however, the claims do not discuss a second subtractor ligand or a first target ligand. Therefore, it is not clear if more than one subtractor ligands or more than one target ligand are required by the presently claimed method.

Applicants have amended step (ii) of claim 31 to read “providing a first population of ligands comprising a ligand fixed to or incorporated in a subtractor ligand construct” and step (iii) to read “providing a second population of ligands comprising the same ligand as step (ii), fixed to or incorporated in a target ligand construct.

Claims 31 and 34-54 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Examiner, independent claim 31 discusses a separation means in steps (vii) and (ix), however due to antecedent basis in method step (ix), it appears that the separation means must be the same in both method steps. However, dependent claims 40-49 suggest that different separation means may be utilized. Applicants have amended step (vii) of the claims to specify that the separation means for the subtractor and target ligands can be either the same or different.

In view of the forgoing, Applicants respectfully submit that the requirements have been satisfied under 35 U.S.C. § 112, second paragraph.

**5. The Claims Are Not Anticipated**

Claims 31, 34-35, and 38-54 are rejected under 35 U.S.C. 102(e) as being anticipated by Lonberg et al. U.S. Patent 7,135,287 ("Lonberg").

According to the Examiner, for present claims 31, 34-35, and 38-39, Lonberg teaches display selection methods to screen libraries of human immunoglobulins comprising: (i) providing a library of antibodies, ii-iii) providing ligands including ligands for negative selection, prescreening, and/or targets including antigens, (iv-vi) utilizing the universal law of mass action to determine the amount of ligands, (vii) separating antibodies from ligands, and (viii-ix) repeating the selection and separation steps. Regarding the equations in claims 31 and 38-39, since applicants elected a wet bench method, these steps equate to a mental process (i.e. mathematical manipulation). See MPEP § 2111 and *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

For present claims 40-42 and 45-46, Lonberg is said to teach cell membranes and cell vesicle screening; for claims 43-44 and 47-49, Lonberg is said to teach different densities, density centrifugation, and sucrose gradients; for claims 50-51, Lonberg is said to teach phage display; for claims 52-53, Lonberg is said to teach antigens and antibodies; and for present claim 54, Lonberg is said to teach stimulating cells to produce antigens or antibodies. Therefore, according to the Examiner, the teachings of Lonberg et al. anticipate the presently claimed method.

As set forth in the MPEP (§ 2106), "[w]hile abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be. In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole

to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, and not for the abstract idea, natural phenomenon, or law of nature itself. As set forth in *Diamond v. Diehr*, 450 U.S. 175 (1981), "It is now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection." *Diehr*, 450 U.S. at 187, 209 USPQ at 8. Thus, "[w]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be." *Diehr*, 450 U.S. at 188, 209 USPQ at 8-9 (quoting Mackay, 306 U.S. at 94).

Applicants assert that the currently pending claims are not anticipated by Lonberg. The key difference between Lonberg and the currently claimed invention is the application of the law of mass action and the listed equation as part of the method that represents the invention. The claimed method as a whole is not directed to merely a mental process but rather to a method for isolating at least one anti-ligand to at least one target ligand, wherein said method utilizes the equation recited in the claim.<sup>1</sup> Since Lonberg fails to disclose or suggest such a method, the claims cannot be anticipated by Lonberg. Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

#### **6. The Claims Are Not Obvious**

Claims 31 and 34-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lonberg and U.S. Patent 6,794,128 ("Marks").

According to the Examiner, although Lonberg does not specifically teach utilizing an excess of one ligand over another ligand. Marks teaches methods of selecting phage displayed antibodies comprising contacting target cells with a phage display antibody library and also

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<sup>1</sup> It should be noted that patents covering this same subject matter, which incorporate the same equations, have been granted in the UK and Europe.

contacting the phage display antibody library with subtractive cells wherein the subtractive cells are in at least a 2 fold excess of the target cells and including 100 fold or 1000 fold excess.

According to the Examiner, the claims would have been obvious because a particular known technique (i.e. subtractive screening of an antibody phage displayed library with 100 fold excess of subtractor to target as taught by Marks et al.) was recognized as part of the ordinary capabilities of one skilled in the art.

As set forth above, the currently pending claims are directed to a method for isolating at least one anti-ligand to at least one target ligand, wherein said method utilizes the equation recited in the claim. Since Lonberg fails to disclose or suggest such a method, the claims cannot be rendered obvious by Lonberg. With regard to Marks, applicants assert that Marks fails to provide the disclosure lacking in the teachings Lonberg. Accordingly, Applicants respectfully request that this ground of rejection be withdrawn.

#### **Conclusion**

In view of the remarks made hereinabove, Applicants respectfully request that the Examiner reconsider and withdraw the rejections set forth in the November 18, 2008 Office Action, and earnestly solicits allowance of the now pending claims.

If a telephone interview would assist in expediting prosecution of the subject application, the Examiner is invited to telephone the undersigned at the number provided below. No fee is deemed necessary in connection with the filing of this Amendment. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 11-0600.

Respectfully submitted,

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